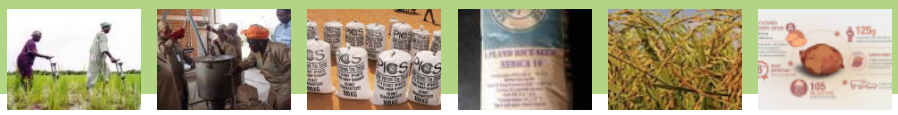
TAAT Technologies in Benin

This toolkit showcases some of the technologies scaled by the TAAT program in Benin, especially during its first phase and then in collaboration with a Sasakawa project. It features innovative solutions for rice cultivation, aquaculture, and other commodities. The toolkit highlights equipment, improved crop varieties and best practices, offering a comprehensive resource for enhancing...

13 TECHNOLOGIES | CREATED ON JUN 14, 2024 BY TAAT PROFILING TEAM | LAST UPDATED MAY 28, 2025



TECHNOLOGIES IN THIS TOOLKIT

- **Rice-fish culture**: Integrating rice and fish farming systems
- **Special Chicken Breed**: Dual-Purpose Chicken for Small-Scale...
- **Affordable Fish Feed Production**: Formulation and Pelleting of Low-...
- **Cage Systems for Fish farming**
- **Hapa Nets for Fingerling**
- **GIFT "Genetically Improved Farmed Tilapia"**: All Male Tilapia...
- **Rice Threshing and Polishing Machines**: Axial flow thresher and...
- **Urea deep placement**: Nitrogen management for Efficient Rice...
- **GEM system**: Parboiling equipment for rice
- **PICS**: Hermetic Bags for Safe Storage of grain
- **NERICA**: High yield rice varieties for Africa
- **ORYLUX varieties**: Aromatic Rice for Africa
- **OFSP**: Orange-Fleshed Sweet Potato (High provitamin A)

https://taat.africa/ifo

Rice-fish culture: Integrating rice and fish farming systems

Rice-Fish System Boosts Profits, Enhances Lowland Land Use for Food Security and Prosperity

Rice-fish co-culture integrates rice and fish farming, boosting food security and farmers' income while ensuring environmental safety by eliminating agrochemicals. It's an innovative approach for food security, economic stability, and environmental sustainability.

Africa Rice
Ephraim Sekyi-Annan

This technology is pre-validated.

9·7 Scaling readiness: idea maturity 9/9; level of use 7/9

Gender assessment 4

Climate impact 6 1

Problem

- **Food insecurity:** Limited access to nutritious food, resulting in nutritional deficiencies.
- **Market vulnerability:** Dependence on rice exposes farmers to market fluctuations, contributing to economic instability.
- **Environmental pollution:** Overuse of agrochemicals leads to soil and water pollution, harming biodiversity and ecosystem health.

Solution

- **Enhanced profitability:** Rice-fish co-culture improves economic viability with a higher benefit-to-cost ratio (2.2), addressing food insecurity.
- **Market resilience:** Rice-fish farmers demonstrate greater resilience to market shocks due to diversified income sources, ensuring economic stability.
- **Nutrition security:** Fish consumption directly tackles nutritional deficiencies, enhancing food security with a diverse and nutritious diet.

Key points to design your project

To integrate this technology into your project:

1. Develop a business model outlining startup costs and sales projections.
2. Identify suitable regions for implementation, focusing on areas with rice cultivation and suitable water bodies.
3. Provide personnel training on technology operation and maintenance.
4. Consider initial investment and operational costs for budgeting.
5. Offer training and post-training support, and explore collaboration with agricultural development institutions for implementation support.

Cost: $$$ **5,428 USD**
Initial Cost per Ha

ROI: $$$ **115 %**
Benefit

3,016 USD
Operating Cost

18,188 USD/ha
Benefit

IP
Open source / open access

Commodities

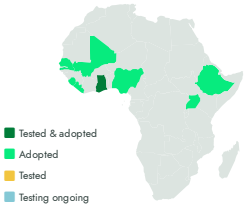
Rice, Fish

Sustainable Development Goals

Categories

Production, Practices, Water management, Production system

Tested/adopted in



Where it can be used

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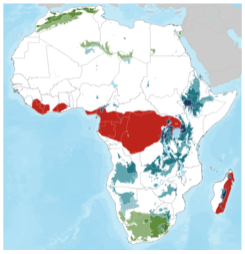


Target groups

Farmers, Fish Farmers

Special Chicken Breed: Dual-Purpose Chicken for Small-Scale Producers

High-Performance Breeding Chicken Breed

The "Dual-Purpose Chicken for Small-Scale Producers" technology focuses on developing and distributing chicken breeds suitable for both high egg production and meat yield. These specialized chickens possess traits like low cost, disease resistance, and efficient feed utilization.

International Livestock Research Institute (ILRI)
Tunde Amole

This technology is TAAT1 validated.

7·7 Scaling readiness: idea maturity 7/9; level of use 7/9

Gender assessment 4

Climate impact 4

Problem

- Low Egg and Meat Productivity in Indigenous Chickens
- High Mortality Rate in Indigenous Chickens
- Limited Performance and Adaptability of Indigenous Breeds
- Challenges in Rearing and Distribution for Small-Scale Farmers
- Need for Adaptation and Regional Adjustments

Solution

- Introduction of dual-purpose chicken breeds addressing low productivity and high mortality.
- Establishment of parent stock farms and hatcheries for consistent supply.
- Distribution through brooder units for proper chick care.
- Enhanced performance in free-range systems with adaptability to local conditions.
- Technical support and empowerment for operators.

Key points to design your project

- Enhances poultry productivity for rural poverty alleviation and food security
- Empowers women, creates jobs, and supports economic growth in rural areas
- Improves poultry industry through innovative breeding and distribution
- Fosters sustainable agriculture and conserves biodiversity
- Requires building infrastructure, acquiring equipment, and estimating costs for integration
- Collaboration with agricultural institutes and consideration of complementary technologies recommended

930 USD
Purchase and rear 1000 birds for five weeks

30 %
Per batch in Nigeria

1.5—2.0 kg
Weight of chickens in 3 months

120—180 eggs
Production by chickens per year

IP
Open source / open access

Technology from

ProPAS

Commodities

Poultry

Sustainable Development Goals

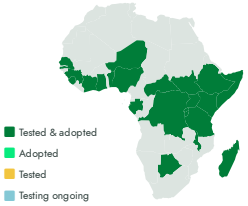
Categories

Production, Improved varieties, Yield improvement

Best used with

- Semi-Automatic Incubator for artificial hatching ›

Tested/adopted in



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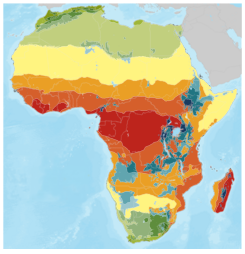


Target groups

Affordable Fish Feed Production: Formulation and Pelleting of Low-Cost Feeds

Empowering Aquaculture with Affordable Feeds

The technology "Formulation and Pelleting of Low-Cost Feeds" aims to reduce the cost of fish feeds in Sub-Saharan Africa, where fish farms spend about 60-70% of their budget on imported feed. It promotes the use of local resources to produce quality, cost-effective and balanced fish feeds. This innovation could enhance the profitability and sustainability of fish farming businesses.

WorldFish
Bernadette Fregene

This technology is TAAT1 validated.

8·8 Scaling readiness: idea maturity 8/9; level of use 8/9

Gender assessment 4

Climate impact 7

Problem

- Fish farming in Sub-Saharan Africa is costly due to expensive feeds.
- A large part of the cost is for imported feed ingredients.
- Simple, unprocessed grains used in feeds lead to poor nutrient transfer and pollution.
- High costs and inefficiencies limit the profitability of fish farming.

Solution

- The technology makes affordable fish feeds using local products.
- Pelleted feeds improve nutrient transfer and reduce pollution.
- Pellets are easier to store and transport, reducing costs.
- The technology allows feed customization for different fish species.

Key points to design your project

The "Formulation and Pelleting of Low-Cost Feeds" technology enables local production of affordable fish feeds in Sub-Saharan Africa, contributing to several SDGs. Implementation involves organizing raw ingredients, selecting a site, procuring equipment, packaging, marketing, and contracting. It requires understanding of fish species' nutrient requirements, local feed ingredients, and feed formulation. The technology can be combined with other aquaculture technologies and requires collaboration with key partners like research institutions, local farmers, and government agencies.

Cost: $$$ **1,200 USD**

Production of 1 ton

85,000 USD

Equipment of production

Technology from

ProPAS

Commodities

Fish

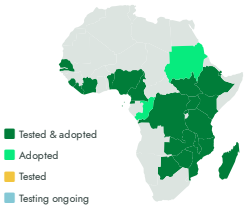
Sustainable Development Goals

2 ZERO HUNGER

Categories

Production, Inputs, Fertilizer

Tested/adopted in



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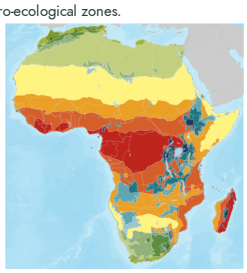


Target groups

Breeders

Cage Systems for Fish farming

Cage Culture: Dive Deep for a Sustainable Leap!

Cage Systems for Fish Culturing is a method where young fish are grown in submerged cages in large water bodies. The cages protect the fish, provide nourishment, and monitor their health. Once mature, the fish are harvested. This technique allows for natural, secure, and regulated fish farming, akin to a floating aquaculture facility.

Floating cage for tilapia farming inside Lake Victoria (Credit: Erick Ochieng Ogello)

WorldFish
Bernadette Fregene

This technology is TAAT1 validated.

8·8 Scaling readiness: idea maturity 8/9; level of use 8/9

Gender assessment 3

Climate impact 1

Problem

- **Space and Control:** Traditional fish farming requires large, expensive land and lacks control in open waters, leading to losses from predators and disease.
- **Water Quality:** In other forms, especially in small ponds, water quality can deteriorate quickly causing problems like low oxygen levels and harmful substance buildup.
- **Environmental Impact:** Some methods can negatively impact the environment, such as causing pollution from waste products.
- **Unpredictable Events:** In open waters, upwelling events can drastically change conditions in the cage, affecting fish health.

Solution

- **Space and Control**: Cage systems efficiently use water bodies, reducing the need for large land areas and providing a controlled environment for the fish.
- **Water Quality**: They help manage water quality issues common in other forms of aquaculture.
- **Environmental Impact**: Cage systems aim to minimize the environmental impact of aquaculture.
- **Upwelling Events**: High-tech solutions have emerged to predict and mitigate upwelling events.

Key points to design your project

Cage aquaculture systems are transforming fish farming in Africa. They offer a scalable, eco-friendly solution that boosts income and aligns with sustainability goals.

Successful implementation requires farmer training, key partnerships (including cage system manufacturers, feed suppliers, aquatic veterinarians, certification bodies, and local fishermen communities), water source assessment, understanding of market demand, and logistics planning.

Research institutions play a crucial role in providing the latest research on cage system technologies and best practices. Each partner brings unique resources and expertise, ensuring the project's success and sustainability.

150 USD

Fish cage of 8 cubic meter

IP

Open source / open access

Commodities

Fish

Sustainable Development Goals

1 NO POVERTY

2 ZERO HUNGER

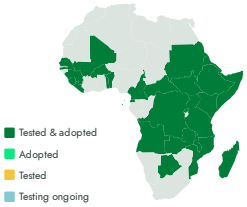
Categories

Production, Equipment, Aquaculture Systems

Best used with

- All Male Tilapia Fingerlings with Greater Yield and Uniformity ›
- Fast Growing and Hybrid African Catfish ›

Tested/adopted in



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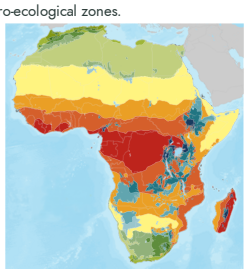


Target groups

Fish Farmers

Hapa Nets for Fingerling

Hapa Nets for Mass Fingerling Hatchery Production

The "Hapa Nets for Mass Fingerling Hatchery Production" technology is cage-like enclosures in ponds to manage fish breeding and growth. Made of affordable materials, these nets enhance fingerling production by protecting fish from predators and controlling breeding conditions. They are adaptable to various aquaculture species and water bodies, improving overall production efficiency.

This technology is TAAT1 validated.

8·8 Scaling readiness: idea maturity 8/9; level of use 8/9

Gender assessment 4

Climate impact 5

Problem

- Inadequate supply of high-grade fingerlings from improved fish breeds
- Poor and uneven growth rates, and high fingerling mortality in open ponds
- Predation by birds, reptiles, amphibians, and aquatic insects
- Difficulty in monitoring and managing brooders, hatchlings, and juveniles

Solution

- Safeguarding brooders, hatchlings, and juveniles from predators and other fish.
- Easing the management of brooder, fry, and fingerlings, enabling closer monitoring and adjustment of breeding, feeding, or aeration regimes.
- Increasing fertilization rates, promoting even growth of fish seed, and reducing mortality, leading to higher production of fry and fingerlings per unit area.

Key points to design your project

The technology facilitates affordable mass production of fingerlings, benefiting fish farmers by boosting income and ensuring food security through increased fish availability. It empowers women in aquaculture, fosters rural economic growth, and advocates sustainable practices to minimize environmental impact.

Key steps for incorporating the technology:

- Identify suitable pond locations and sizes.
- Procure appropriate net materials.
- Determine optimal stocking densities.
- Ensure access to high-quality, affordable feed.
- Promote the use of cultured fingerlings locally.

Allocate resources for training and support during implementation, collaborate with agricultural institutions, and consider integrating complementary technologies for optimization.

Cost: $$$ **1 USD**

Per square meter

150—900 fingerlings per square meter

Production in hapa

8—20 fish farmers

Number of fish farmers in a single hatchery

IP

Open source / open access

WorldFish

Bernadette Fregene

Technology from

ProPAS

Commodities

Fish

Sustainable Development Goals

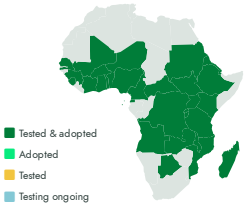
Categories

Production, Equipment, Aquaculture Systems

Best used with

- All Male Tilapia Fingerlings with Greater Yield and Uniformity ›
- Fast Growing and Hybrid African Catfish ›

Tested/adopted in



Where it can be used

This technology can be used in the colored agro-ecological zones.

GIFT "Genetically Improved Farmed Tilapia": All Male Tilapia Fingerlings with Greater Yield and Uniformity

Greater yield and uniformity in tilapia farming

The technology involves predominantly growing male tilapia. This can be achieved through various methods such as manual selection, hormone treatment, or natural techniques. Specifically bred tilapia (GIFT) is recommended for commercial farming.

This technology is TAAT1 validated.

8·8 Scaling readiness: idea maturity 8/9; level of use 8/9

Gender assessment 4

Climate impact 7

Problem

- Mixed-sex tilapia culturing often leads to lower yields and non-uniform harvests.
- Manual sex selection at the beginning of the production cycle is time-consuming.
- Hormonal alteration of fry involves the application of α-Methyltestosterone, which may pose concerns regarding its use in feed and its impact on fish health and the environment.

Solution

- Utilizing improved lines of tilapia breeds can enhance the effectiveness of manual selection, hormonal treatment, YY male technology, and GIFT.
- Crossbreeding strategies can produce 100% male offspring, improving mono-sex tilapia production efficiency.
- Careful management of brood stock selection in hatcheries, focusing on younger brooders free from wounds and parasites, ensures high-quality and abundant fish seed production.

Key points to design your project

The mono-sex male tilapia technology aligns with Sustainable Development Goals, promoting food security, gender equality, climate action, and marine life preservation. To integrate this technology, consider:

- Feasibility studies,
- Legal frameworks, and specialized training for farmers. Training costs and
- Communication support should be included.
- Accompanying solutions include Hapa Nets for Mass Fingerling Hatchery Production.

Cost: $$$ **100 USD**
Stocking rate of 1,000 fish per cubic meter of water

ROI: $$$ **30 %**
Harvest volume increased

0.1 USD
Cost of one month mono-sex fingerlings in Kenya

300 - 900 g
Weight of male fingerlings stocked in cages in 5 to 8 months of culture

IP
Patent granted

WorldFish
Bernadette Fregene

Technology from

ProPAS

Commodities

Fish

Sustainable Development Goals

2 ZERO HUNGER
8 DECENT WORK AND ECONOMIC GROWTH

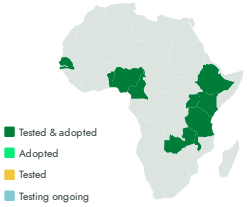
Categories

Production, Improved varieties, Yield improvement

Best used with

- Hapa Nets for Fingerling ›

Tested/adopted in



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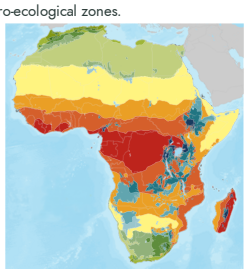


Target groups

Breeders

Rice Threshing and Polishing Machines: Axial flow thresher and improved quality polishing

Efficient rice threshing and polishing for premium quality grains, boosting income and market access in african communities.

Axial flow threshers utilize a rotating drum to separate rice grain from the surrounding husk, while abrasive polishers remove outer bran layers. Key parts are made of stainless steel for durability and hygiene. These equipment can be powered by diesel/petrol generators or solar installations for easy use in rural areas.

Africa Rice Center
Sali Atanga Ndindeng

This technology is TAAT1 validated.

8·8 Scaling readiness: idea maturity 8/9; level of use 8/9

Gender assessment 4

Climate impact 7

Problem

- High grain losses due to manual threshing methods.
- Inefficiencies in the traditional polishing process, particularly manual rubbing.
- Time-consuming and labour-intensive artisanal practices.
- Difficulty in processing large volumes of rice in communities.

Solution

- The motorized axial flow threshers reduces grain breakage and loss compared to traditional manual methods.
- The mechanized equipment drastically reduces the time and labour required for threshing and polishing.
- The mobile units are designed to be highly mobile and can be easily transported to even remote rural areas.

Key points to design your project

The adoption of Axial flow thresher and improved quality polishing offers a solution to enhance agricultural efficiency and reduce labor-intensive tasks. Key steps to integrate this technology include:

- Inform rice farmers, cooperatives and millers about the benefits of motorized threshers and polishers for increasing value addition and market access, and reducing post-harvest costs and losses.
- Identify suitable setup and size of mobile rice processing equipment
- Establish reliable supply of rice by drawing up contracts and delivery schedules for farmers.
- Provide loans to community-based and commercial processors for acquiring mobile units.

Cost: $$$ **4500 USD**
Local thresher

20 %
Losses reduced

15000—20000 USD
Advanced polishers and whiteners

3000 USD
Small bench-top polishers

IP
Patent granted

Technology from

ProPAS

Commodities

Rice

Sustainable Development Goals

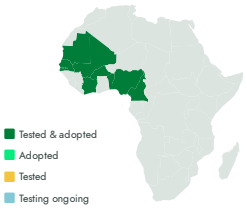
2 ZERO HUNGER

8 DECENT WORK AND ECONOMIC GROWTH

Categories

Harvest, Equipment, Post-harvest handling

Tested/adopted in



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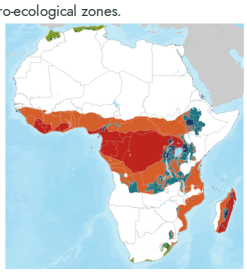


Target groups

Farmers

Urea deep placement: Nitrogen management for Efficient Rice Fertilization

Boost rice yields and save on fertilizer costs through efficient nitrogen management

Deep Urea Placement involves drilling urea granules into rice fields, optimizing nutrient uptake, soil fertility, and productivity. Placed 7 to 14 centimeters deep, it ensures consistent nitrogen supply, particularly suitable for lowland rice farming with clay soils.

Africa Rice Center
Sali Atanga Ndindeng

This technology is TAAT1 validated.

8·8 Scaling readiness: idea maturity 8/9; level of use 8/9

Gender assessment 4

Climate impact 7

Problem

- Inefficient Nitrogen Utilization.
- Environmental Pollution due to traditional urea application.
- Low Grain Productivity due to high nitrogen losses from current urea practices.
- High production costs without proportional yield increases.
- Limited irrigation in optimizing traditional urea application under varying rainfall.
- Climate disturbances causing by greenhouse gas emissions from conventional urea application.

Solution

- Large granules release nitrogen slowly, optimizing absorption by rice crops, reducing waste, preserving the environment and preventing contamination.
- Direct nitrogen delivery enhances soil fertility, promoting healthier rice crops and higher yields.
- Subsoil placement contributes to increased drought resilience in farming systems.
- Single-season application reduces labor and overall production costs.
- Suited for diverse agroecologies, benefiting both subsistence and commercial rice farmers.

Key points to design your project

1. Evaluate the required product quantity and cost, considering USD 0.4-0.8 per kilogram and a recommended rate of 0.25 tons per hectare.
2. Consider the technology's supply location, factoring in delivery costs and potential import duties.
3. Trainers can provide support during installation; budget for training and post-training assistance.
4. Develop communication materials for technology promotion.
5. Enhance the improved maize variety with companion planting, foliar micronutrient addition, engineered irrigation, motorized weeders, and RiceAdvice digital support.
6. Collaborate with agricultural institutes and agro-dealers for nationwide implementation.

Cost: $$$ **0.4—0.8 USD** per Kg

ROI: $$$ **30 %** increase in yield

0.25 ton Recommended rate per Ha

100—200 USD Equivalence cost for the recommendated rate per Ha

10 USD plunger-type applicator

IP Open source / open access

Technology from

ProPAS

Commodities

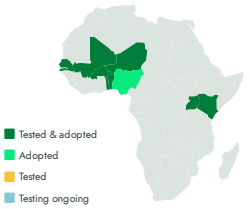
Rice

Sustainable Development Goals

Categories

Production, Practices, Fertilizer management

Tested/adopted in



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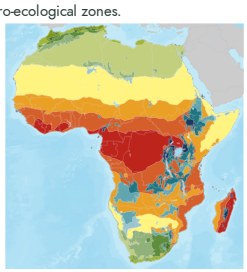


Target groups

Farmers

GEM system: Parboiling equipment for rice

Reduce milling losses, enhance nutritional and organoleptic quality

The technology improves rice parboiling with a new design, replacing traditional methods prone to emissions. Tailored for small to medium-scale processors, it enhances efficiency and product quality, reducing steaming time and improving grain quality significantly.

Africa Rice Center
Sali Atanga Ndindeng

This technology is TAAT1 validated.

9·9 Scaling readiness: idea maturity 9/9; level of use 9/9

Gender assessment 4

Climate impact 4

Problem

Traditional, Old-Fashioned Parboiling Methods are:

- Inefficiency and high labor requirements
- Excessive losses during dehulling
- Degradation of nutritional value
- Inferior sensory qualities

Solution

- Reduces steaming time to 20-25 minutes, minimizing emissions exposure.
- Improves grain translucency, reduces chalkiness, and boosts nutritional value.
- Provides low glycemic index, increased fiber, and higher vitamin B availability.
- Allows longer storage as rice flour, aiding food security.
- Made from simple, locally available materials.

Key points to design your project

To integrate it into your project, follow these steps:

- Raise awareness among processors and consumers about GEM parboiling systems.
- Assist in selecting the right system size and configuration.
- Ensure a steady supply of high-quality rice.
- Develop marketing strategies for rice flour and derived products.

Cost: $$$ **5000 USD**
Equipment

ROI: $$$ **70 %**
Internal rate of return for a GEM parboiling system

0.64 USD
firewood per 100kg of rice

IP
Open source / open access

Technology from

ProPAS

Commodities

Rice

Sustainable Development Goals

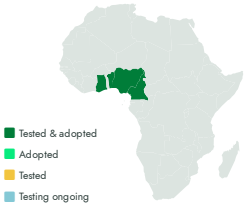
Categories

Transformation, Equipment, Agrifood processing

Best used with

- Advanced rice varieties for Africa ›
- High yield rice varieties for Africa ›
- RiceAdvice digital support ›

Tested/adopted in



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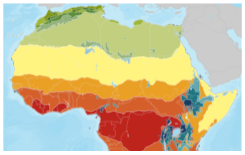


PICS: Hermetic Bags for Safe Storage of grain

Low cost storage technologies for grain

Hermetic bags are like super-sealed containers that stop air and moisture from reaching the grains inside. This way, farmers can store their grains for up to two years without them getting bad. This is good for farmers because it means they always have enough food and can sell their grains for better prices.

This technology is TAAT1 validated.

9·9 Scaling readiness: idea maturity 9/9; level of use 9/9

Gender assessment 4

Climate impact 5

Problem

- **Post-harvest losses**: Farmers in Sub-Saharan Africa lose over 25% of beans due to inadequate storage methods.
- **Pest infestations**: Weevils, moths, and mites damage stored beans, forcing farmers to sell at low prices immediately after harvest to minimize losses.
- **Fungal contamination**: Traditional storage can lead to fungal growth, such as aflatoxin, contaminating beans and reducing their quality.
- **Food security issues**: Ineffective storage hinders farmers' ability to keep enough beans for consumption between harvests, threatening food security and livelihoods.

Solution

- **Airtight sealing**: The multi-layer design blocks air and moisture, preventing pest infestations without chemicals.
- **Moisture control**: Hermetic bags maintain stable moisture levels, inhibiting fungal growth like aflatoxin.
- **Long-term preservation**: They preserve beans for up to two years, maintaining quality and cooking time.
- **High durability**: Made from strong, reusable materials, hermetic bags ensure reliable grain storage.

Key points to design your project

To integrate PICS bags into your project:

- **Cost Analysis**: Bags cost $1 to $1.5 each (50kg or 100kg capacity). Estimate the number needed.
- **Supply Chain**: Identify suppliers, including delivery costs and any import duties.
- **Training**: Budget for training sessions and ongoing support.
- **Communication**: Create promotional materials (flyers, videos, etc.).
- **Grain Preparation**: Ensure grains are properly dried before storage, using moisture measurement devices if necessary.

These steps will help enhance food security and reduce post-harvest losses.

Cost: $$$ **2—3 USD**
Bag cost for users

ROI: $$$ **90 %**
Reduction of loss

50 or 100 Kg
Bag capacity

2 year
Life span

IP
Trademark

Alliance

The Alliance of Bioversity International and the International Center for Tropical Agriculture (CIAT)
Laurie Kitch

Technology from

ProPAS

Commodities

Common bean, Rice, Wheat, Maize, Sorghum/Millet, Soybean

Sustainable Development Goals

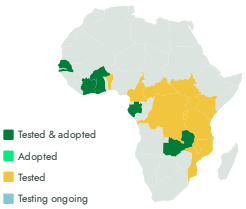
Categories

Prevention & storage, Equipment, Post-harvest handling

Best used with

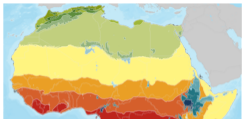
- Mechanized Threshing Operations ›

Tested/adopted in



Where it can be used

This technology can be used in the colored agro-ecological zones.



NERICA: High yield rice varieties for Africa

NERICA: Higher Yields, Resilience, and Profitability for African Farmers.

NERICA varieties are tailored for African conditions, offering high yields (2 to 6 tons per hectare), resistance to weeds and drought, and adaptability to poor soils. They show moderate resistance to diseases and pests, reducing the need for chemical interventions and promoting sustainable agriculture in Africa.

This technology is TAAT1 validated.

8·8 Scaling readiness: idea maturity 8/9; level of use 8/9

Gender assessment 4

Climate impact 4

Problem

- Traditional rice varieties often yield less, impacting food security and farmers' income.
- Conventional varieties are more susceptible to pests and diseases, leading to yield losses.
- Many varieties struggle in nutrient-poor soils and under erratic rainfall.
- Insufficient local production leads to heavy reliance on imported rice, affecting economic stability.

Solution

- NERICA varieties yield more, ensuring food security and higher income.
- They resist pests and diseases, reducing chemical use.
- Thrives in poor soils and limited water, suitable for diverse environments.
- Boosts local production, enhancing economic stability.
- Accessible to small-scale growers, improving practices and income.

Key points to design your project

To integrate NERICA technology into your project, consider the following steps:

- Develop NERICA varieties tailored to local growing conditions.
- Conduct awareness campaigns to highlight the benefits of planting improved rice varieties.
- Ensure equitable access and financial support for local suppliers and farmers.
- Estimate seed quantity needed, including technology costs and delivery expenses.
- Engage a team of trainers for installation support and develop communication materials.
- Consider optimizing NERICA with other agricultural practices like nitrogen management and weed control.
- Collaborate with agricultural institutes and seed companies for implementation.

Cost: $$$ **0.8—1.2 USD**

Per kg of seeds

ROI: $$$ **25—39 %**

1.7—0.7 ton per ha

with and without fertilizer

IP

Open source / open access

AfricaRice

Africa Rice Center

Sali Atanga Ndindeng

Technology from

ProPAS

Commodities

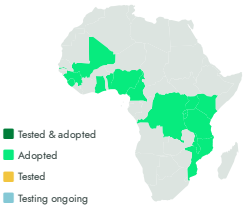
Rice

Sustainable Development Goals

Categories

Production, Improved varieties, Yield improvement, Drought tolerance

Tested/adopted in



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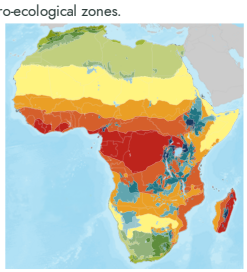


Target groups

Farmers, Seed companies

ORYLUX varieties: Aromatic Rice for Africa

Local African aromatic rice

This technology is all about growing special types of delicious-smelling rice in Africa. These rice varieties are designed to grow well in African conditions. They taste really good and are in high demand. Right now, not enough of this rice is grown in Africa, so a lot of it has to be imported.

Africa Rice Center
Sali Atanga Ndindeng

This technology is TAAT1 validated.

7·7 Scaling readiness: idea maturity 7/9; level of use 7/9

Gender assessment 4

Climate impact 2

Problem

- Low production of aromatic rice in Sub-Saharan Africa (SSA)
- High dependence on imports from Asia
- Limited access of farmers to seeds suited to prevalent growing conditions
- Lack of aromatic rice varieties adapted to SSA's conditions
- Need to improve yields, quality, and resistance of rice crops
- Insufficient connections between stakeholders for commercialization

Solution

- Development of aromatic rice varieties tailored to SSA's agroecosystems
- Crossbreeding with elite lines to maintain high yields and beneficial traits
- Utilization of genetic mapping and molecular tools for faster breeding
- Dissemination of ORYLUX seeds in local markets to increase availability
- Establishment of connections between farmers, processors, and consumers for value maximization

Key points to design your project

1. Identify suitable ORYLUX varieties.
2. Raise awareness about its benefits.
3. Ensure access to seeds and support.
4. Estimate seed quantity and costs.
5. Provide training and communication support.
6. Collaborate with institutes and companies for implementation.

Cost: $$$ **1,3 USD**

A Seed cost per kg

10—12 Kg per Ha	**51 USD per Ha**	**105 USD per Ha**	**200 USD per Ha**	**IP**
Planting densities	Labour costs for planting	Fertilizer inputs	Harvesting and winnowing of grain	Unknown

Technology from

ProPAS

Commodities

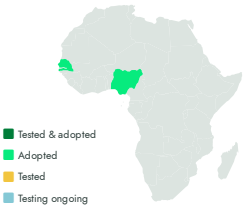
Rice

Sustainable Development Goals

Categories

Production, Improved varieties, Quality improvement

Tested/adopted in



Where it can be used

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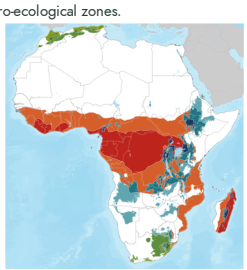


Target groups

Farmers, Seed companies, Sellers

OFSP: Orange-Fleshed Sweet Potato (High provitamin A)

Orange Sweetness, Nutrient Richness, and Farmer's Success - Embrace OFSP!

Orange Fleshed Sweet Potato (OFSP) is a biofortified crop rich in beta-carotene, particularly in comparison to light-colored flesh cultivars. Upon consumption, the beta-carotene converts into vitamin A, enhancing nutrition and supplementing diets. OFSP holds significant potential for improving food and nutritional security throughout Africa.

International Potato Center (CIP)
Kwikiriza Norman

This technology is TAAT1 validated.

8·9 Scaling readiness: idea maturity 8/9; level of use 9/9

Gender assessment 5

Climate impact 6 1

Problem

- Widespread vitamin A deficiency contributes to malnourishment,
- Traditional sweet potato varieties yield only 3-7 tons per hectare, resulting in limited food availability and income for farmers.
- The lack of diverse and nutrient-rich crops hampers overall nutrition, posing a challenge to addressing dietary deficiencies and promoting sustainable agriculture.

Solution

- It addresses vitamin A deficiency by providing a rich source of this essential nutrient, promoting better health and nutrition.
- OFSP's improved varieties yield 25 tons per hectare, significantly surpassing traditional varieties, thereby enhancing food security and increasing farmers' income.
- OFSP offers a versatile and nutrient-rich crop, diversifying nutrient sources and contributing to overall nutrition, promoting a sustainable and healthier agricultural ecosystem.

Key points to design your project

This technology promotes gender inclusion by improving nutrition and food security. To integrate it into your project,

- Estimate vine quantity needed,
- Actor in delivery costs and import duties,
- Provide training and support and develop communication materials.

Cost: $$$ **20 USD**
10kg vines

200 kg	**25 tons**	**IP**
vines for 1 acre (0.3 hectare)	per hectare	Open source / open access

Technology from

ProPAS

Commodities

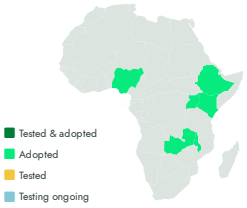
Sweet Potato

Sustainable Development Goals

Categories

Production, Improved varieties, Yield improvement, Quality improvement

Tested/adopted in



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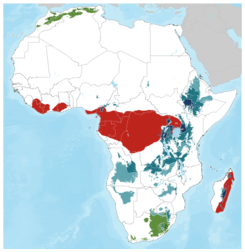

Target groups

Farmers, Seed companies

TAAT Technologies in Benin

https://taat.africa/ifo

ABOUT US

TAAT

TAAT, Technologies for African Agricultural Transformation, is an African Development Bank initiative to boost agricultural productivity by rapidly rolling out proven technologies to more than 40 million smallholder farmers.

TAAT aims to double crop, livestock, and fish productivity by 2025 by engaging both public and private sectors to expand access to productivity-increasing technologies across the continent.TAAT advises African government who receive funding from international financial institutions such as the African Development Bank to help them integrate the best agricultural technologies in their development projects. TAAT also offers technical assistance for the integration of these technologies, when needed.

TAAT Technologies

TAAT definition of agricultural technologies is very broad: they include improved varieties, inputs, equipment, agricultural infrastructure, practices and agricultural policies. In short, any solution to an agricultural constraint. TAAT technologies have been developed by a wide variety of organizations: the CGIAR, other international research institutions, national research organizations, or the private sector.

TAAT Clearinghouse

Within TAAT, the Clearinghouse has the remit to select, profile and validate agricultural technologies, and showcase them in online catalogs to support the advisory role that the Clearinghouse offers to governments and the private sector. The Clearinghouse strives to be an 'honest broker' of technologies through its selection, profiling, validation and advice.

TAAT e-catalogs

The e-catalogs are designed to be used by decision-makers within governments, private sector companies or development organizations. They facilitate the search for appropriate solutions that are adapted to local conditions and requirements, and provide all necessary information, presented in jargon-free and easy to analyze technology profiles. Once a decision-maker has selected a technology of interest, the e-catalogs facilitate their direct contact with those who can help them implement the technology, whether they are a research group or a private company.

TAAT Technology Toolkits

Technology toolkits are hand-picked selections of technologies from the TAAT e-catalogs. We offer some curated toolkits for specific cases, and registered users can create their own toolkits, showcasing their selection of technologies. Toolkits can be used online and shared as links, as mini e-catalogs, they can also be downloaded, saved, shared or printed as collections of technology pitches in PDF format (pitches are one-page summaries of technology profiles, available for all technologies on the e-catalogs).

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